

**FAQs for California Energy Commission
Computers and Displays Regulation
(Rev. June 1, 2023)**

Registration and Certification
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Registration and Certification

1-1) Is the certification of computer products similar to other products in the CEC's Modernized Appliance Efficiency Database System (MAEDbS)?

A. Yes. The process for certifying computers (and monitors) is similar to other products subject to California or federal energy efficiency regulations. Manufacturers will provide specific information about their product models using a template provided by the CEC.

1-2) Are there marking requirements that apply to computer products?

A. Yes. Products are required to be physically marked with:

1. their associated manufacturer name, brand name, or trademark;
2. their model number; and
3. their date of manufacture.

No other marks are required. Per California Code of Regulations, Title 20, section 1607(b)(3), if the date of manufacture is in a code that is not readily understandable to the layperson, the manufacturer shall provide the code to the CEC upon request.

1-3) Are there any fees for certifying products to the CEC?

A. No. The CEC does not currently charge any fees for certifying products to the CEC.

1-4) If a manufacturer is registered with MAEDbS due to having certified other products in the past (for example, for having previously certified small batter chargers), do they need to register again for computers?

A. No. Entities that are already registered as submitting manufacturers or as 3rd party certifiers do not need to register again to certify computer data.

1-5) If a test laboratory for computers is registered with MAEDbS as a test laboratory for another product type, do they need to obtain approval again for computers?

A. Yes. Test laboratories need to receive separate approval for each type of product it tests. This means that a test laboratory approved for other products, such as small battery chargers, will need to apply for approval to test computer products if they have not already done so.

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1-6) If a notebook computer is certified and listed in MAEDbS for its “small battery charger system,” does it need to be certified again as a computer?

A. Yes. Computer models that are certified as meeting battery charger standards also need to be certified as meeting computer standards.

1-7) What is the process to certify computer model information?

A. The process to certify computer information is similar to other products subject to energy efficiency standards in California. You can find general instructions for submitting appliance data [here](#). The CEC will also offer outreach and education, including factsheets and webinars, on how to certify computers to MAEDbS. Webinars and other outreach and education materials are posted to the CEC’s website at: <http://www.energy.ca.gov/appliances/>.

1-11) Will there be a Qualified Products List for consumers, similar to ENERGY STAR®, to know what products are available for purchase in California?

A. Yes. MAEDbS is a publicly available and searchable database that publicly lists the models certified to the CEC as meeting applicable standards. You can access and search MAEDbS through the CEC’s website at: <http://www.energy.ca.gov/appliances/>

1-12) If I am not certain that my product is regulated by Title 20, how do I find out if it is?

A. The first place to review the requirements for computers is the regulations themselves at California Code of Regulations, Title 20, sections 1601-1609. Specifically, the Scope of the regulations is in Section 1601 and the Definitions that describe each appliance listed in the Scope are in Section 1602.

If there are questions about the applicability of the computer regulations to a new product or technology, stakeholders may contact the Appliance Call Center at 916-651-7100 or appliances@energy.ca.gov. In most cases, efficiency standards are flexible enough to accommodate new technologies and innovations without the need for repeated, time-consuming, and resource-intensive rulemakings to develop new allowances or adders.

If the existing standards do not accommodate a new technology, manufacturers or other affected parties can submit a petition along with supporting data to the CEC to propose changes to the standards. All petitions should include:

- The name, address, and telephone number of the petitioner;
- The substance or nature of the change to the regulations requested;
- The reasons for the request, including any data or evidence to support the specific change to the regulation requested, and information showing why the new technology cannot be incorporated absent a change in the regulations; and
- A reference to the authority of the CEC to take the action requested.

The petition should be submitted to the executive director of the CEC with a copy to the director of the Efficiency Division. (See Title 20, section 1221, for more information.)

If necessary, manufacturers or other parties can work with the CEC's Chief Counsel's Office to submit confidential or proprietary data supporting their proposal under the CEC's confidentiality process. (See Title 20, section 2505, for more information.)

Definitions, Scope, and Effective Dates

2-1) Does the computer regulation apply to computers that ship into a California port, but are then not sold into California? If the product just passes through a California international shipping port does it have to be registered or comply?

A. No. California's energy efficiency standards only apply to computers that are sold or offered for sale in California. They do not apply to products that transit through California for sale in another state.

2-2) Does the computer regulation apply to business-to-business development vehicles intended for engineering, development, validation purposes, etc. (including full computer systems) that are shared among industry partners?

A. If two companies are working together to make a prototype system, then those prototypes do not have to comply with the computer regulations. However, business-to-business development vehicles cannot be used to circumvent the intent of the regulations in order for a company to sell or offer to sell noncompliant computers to another company.

2-3) Does a computer have to comply with the CEC's computer regulations if:

a. The end user lives in California and orders a computer on a website where the inventory is not in California and the product is shipped from out of California?

b. The end user does not live in California and orders a computer on a website where the inventory is in California and the product is shipped from California?

A. In general any type of transaction that pertains to an "... appliance that is sold or offered for sale in California" must comply. In some instances, a determination would have to be made on a case-by-case basis based on specific facts. Assuming that the end user is ordering the computer from their place of residence and barring additional information, the first example is a sale taking place within the state and the second example is not.

2-4) Should computers provided to companies' offices in California comply with this regulation if those computers are not intended to be sold in California?

A. Yes. If computers are purchased elsewhere with the intent of being used in California, it is considered "sold in California" and must comply. If a manufacturer or

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retailer directly sells computers to another company for use in its California offices, those computers must comply.

That said, per the answer to Question 2-3 there might be some unique circumstances where this would not be the case; therefore, a final determination would be fact-specific. For example, if a manufacturer sells computers elsewhere and a consumer buys and brings the computer into California during a move, that computer would not need to comply.

2-5) Do computer regulations apply to individual computer components besides complete computer systems that are sold in California?

A. The regulations apply to “computers” as defined in section 1602 of the regulations. An installable hardware component that does not meet the definition of a computer by itself, such as an add-in card or a discrete graphics processing unit (GPU), does not need to comply with the computer regulations individually. (Note that monitors and similar display screens are not computer components and are instead considered a separate appliance category.)

2-6) If a desktop computer could be qualified as a high-expandability computer and is marketed with different power supply sizes, does it have to have different model numbers for its high-expandability and desktop versions in the CEC’s database?

A. No. They can have the same model number. However, they must be tested and certified under each category separately and must comply with the effective date and requirements that pertain to each of their specific categories. A similar approach may be taken for mobile workstations and mobile gaming systems.

2-7) For desktop computers that meet the definition of “High-Expandability Computer” (with requirements effective January 1, 2018), can manufacturers choose to classify them as “Desktop Computers” and plan to comply with the total energy consumption (TEC) limits and other requirements specified in Tier-1 (effective January 1, 2019) and Tier-2 (effective January 1, 2021), and not classify and register the product as a “High-Expandability Computer” (effective January 1, 2018)?

A. No. If a computer meets the criteria for “high-expandability computer” and it is manufactured on or after January 1, 2018, then it must comply with the high-expandability computer requirements.

2-8) If a display can fall under multiple definitions, how do you decide which definition to follow for compliance purposes?

A. If a computer monitor meets the criteria and definition for two categories of computer monitors, the least stringent standards between those categories apply. For example, a “medical computer monitor” that is a “very high-performance” monitor only needs to comply with medical computer monitor standards.

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If displays meet criteria for several “allowances” from Table V-5, those allowances are added together as long as they are for different types of features or functions. For example a gaming monitor with enhanced performance display with a color gamut support of 39 percent of International Commission on Illumination CIE LUV, can have one allowance for enhanced performance (E_{EP}) plus one allowance for gaming (E_{Game}).

2-9) Signage displays are newly defined in the revised regulation. In other parts of this regulation, equipment newly added is provided a transition period with a future effective date. However, the Table referenced below (to which signage displays are newly added) does not include the typical transition period with a future effective date. What is the transition period/future effective date for signage displays? Is there an additional phase-in period specified somewhere else for signage displays?

A. There is none. Signage displays were previously required to meet television standards, and the changes made in this rulemaking merely clarify and relocate that requirement.

2-10) Are manufacturers responsible for changes made by the retailer after sale? Computers & computer displays are available for purchase from manufacturer’s websites and also through various brick and mortar retailers. This potentially introduces two scenarios:

i. A manufacturer sells covered products to a retailer. The retailer has the covered products shipped to their distribution center located outside of the state of California. Compliance with the Title 20 regulation was not specified by the retailer in the business contract. The retailer ships the covered products to a store located within the state of California. Who is liable if the covered product does not comply with the regulation?

ii. A manufacturer sells covered products to a retailer. The business contract includes compliance with the applicable Title 20 regulation. The covered models are shipped to the retailer located within the state of California and comply with the regulation. The retailer modifies the as-shipped configuration and increases the power consumption, and the appliance no longer complies. Who is liable in this situation?

A. Manufacturers are responsible to sell models in California that are certified and comply with the applicable standards and that are listed in the CEC’s database, as well as to take reasonable precautions to ensure that models they sell to a retailer that are not compliant with California standards are explicitly identified as “not for sale and distribution in California.” Retailers and distributors are responsible for ensuring that models that they are offering for sale or selling in California are certified to the CEC’s database.

If a retailer or distributor, without the manufacturer’s knowledge, makes modifications to a computer that change the energy consumption levels, then the retailer or distributor

becomes a manufacturer and must test, certify, and comply with the applicable standards.

2-11) Are outdoor informational displays considered computer monitors or signage displays?

A. Products that meet the definition of “television,” “computer monitor,” or “signage display” must comply with associated requirements. There are exemptions, for example professional signage displays as defined in section 1602 are exempt from complying with the signage display regulations. For specific product determinations, please send a specification sheet of the product to the CEC’s Appliance Call Center at: Appliances@energy.ca.gov.

Test Procedures, Standards, and Calculations

3-1) For the storage adder, if there are two different types of storage drives in the computer and they have the same size (capacity), does the manufacturer get to choose which adder to apply to the system?

A. Yes. If both storages have the same size exactly, then the manufacturer can choose to assign one as the “main storage” and the other as the “storage device other than main storage device.”

3-2) Sometimes small scale servers do not have a dedicated display connected to the unit. Once the server is configured it can be left alone to do its job or it can be provisioned to work with a monitor. If this happens does the small scale server have to comply with the requirement “connected display into sleep mode within 15 minutes of user inactivity” (section 1605.3(v)(6)(C)). Since the requirement says “connected,” if there is no connected display then one would assume this requirement does not apply.

A. If the small scale server as-shipped is not configured to be connected to a computer monitor or display, either wired or wireless, then section 1605.3(v)(6)(C) does not apply.

3-3) Computer monitors with touch screen capability have an additional watt allowance. If a signage display has touch screen capability, is there an additional allowance? If not, is it appropriate to disable the touch functionality during testing?

A. There is no extra allowance for touch screen capability for signage displays. The test procedure specified in 10 C.F.R. section 430.23(h) (Appendix H to Subpart B of part 430) (same test as for televisions) addresses what features may be disabled during testing.

3-4) A zero client, which is a thin-client without an operating system (OS), does not have sleep mode or any alternative sleep mode because it lacks any OS. How would one calculate total electricity consumption (TEC), which includes consideration of sleep mode?

A. Normally zero client computers are operated through a remote server's operating system and should be tested the way they are designed to operate. Because these computers do not have an operating system, they are exempt from transitioning into sleep mode and other power management settings per section 1605.3(v)(5)(C).

Sleep mode measurements are modified from the ENERGY STAR test procedure in order to accommodate computers without traditional Advanced Configuration and Power Interface (ACPI) S3 sleep modes or computers such as zero thin-clients that do not have any type of sleep mode. For such cases, the power that is measured after 30 minutes of user inactivity is considered as "sleep power" and is used for the TEC calculation. The test procedure for the sleep mode power measurement is outlined in section 1604(v)(5)(H).

3-5) Does the discrete GPU adder apply for computers that are configured with enabled hybrid graphics?

A. Yes. The discrete GPU adder applies in the same way to systems with enabled hybrid graphics as other systems with discrete graphics.

3-6) Does the reference in the CEC's regulations to ENERGY STAR test methods include requirements applicable to the test labs that perform the testing?

A. No. For the CEC's test laboratory requirements refer to section 1603 of Title 20 of the California Code of Regulations.

3-7) A SATA Express connector provides a problem with expandability score calculation. What is the correct value of SATA ports and SATA Express ports if, for example, 8 SATA ports are present and 4 of those 8 is able to be paired and used as SATA Express ports?

- Configuration 1 – 4 SATA ports + 2 SATA Express ports
- Configuration 2 – 6 SATA Ports + 1 SATA Express ports
- Configuration 3 – 8 SATA ports + 0 SATA Express Ports

Background: a SATA Express connector uses 2 SATA ports + a small additional port (see **Figure 1** below). Some SATA connectors (see **Figure 2**) accommodate both options – SATA or SATA Express.

Figure 1. SATA Express connector (Image source: Newegg.com)

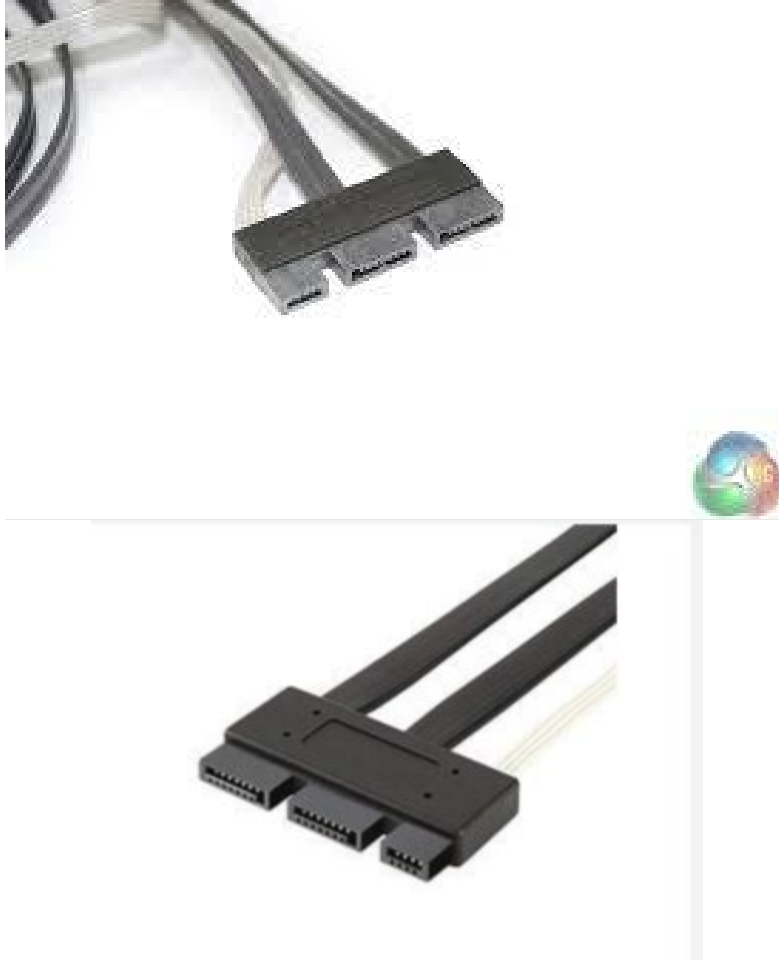


Figure 2. SATA connectors with SATA or SATA Express (Image source: Legitreviews.com)



A. The expandability score is calculated for “as shipped” configuration. If, for example, a motherboard has 8x SATA from which 4 are converted to 2x SATA Express when the computer is shipped then the expandability score should be calculated with 4x SATA and 2x SATA Express. For the expandability score calculation follow the steps in section 1604(v)(5)(C).

3-8) For many computers, a secure digital (SD) Card reader is hardwired to the motherboard, and it is standard for all configurations. SD Card readers require additional power budget when the computer is in the short- and long-idle states. Should manufacturers include SD Card reader under the expandability score category for peripheral component interconnect (PCI) slot other than PCIe x16 (only count mechanical slots)?

A. There is no specific expandability score allocated for SD Card readers. However, SD Card readers can receive the add-in card adder if they meet the definition of an add-in card in section 1602(v) and meet the criteria stated in table V-8.

3-9) What does “the same” power supply and motherboard mean in the definition of basic model?

A. Words and phrases that are not expressly defined in regulation have their ordinary, dictionary definitions. “The same” is defined in common English dictionaries as, “identical; not different,” and, “of an identical type; exactly similar.” Therefore, a power supply or motherboard would need to have exactly similar (i.e., not different) specifications and circuit design to be considered “the same.” For example, power supplies with differing wattage, efficiency ratings, or input power are not “the same.” Motherboards with differing chipsets, circuit designs, or connectors for additional components are not “the same.”

3-10) Do I have to change the basic model number when the power supply or mother board manufacturer or model number changes?

A. No, if the new component is of an identical type, and exactly similar, with the same specifications and circuitry. If, instead, the new component is not the same, then the computer must be treated as a different basic model.

3-11) If a manufacturer develops a computer that incorporates wireless charging and the power is sourced from the system (e.g., wireless charging integrated into the computer), the computer may be supplying power continuously to the wireless charging in S0 idle/S3 (Standby)/S4 (Hibernate)/S5 (off). Power consumption may be 1W-15W/40W depending on whether the device is being charged or not. The CEC provides relief for displays that allows the exclusion of certain functions not related to the display of images. Can manufacturers apply this relief for computers and exclude integrated wireless charging features from power consumption calculations?

A. Test procedures for computers must follow the ENERGY STAR test procedure with the modifications that are included in Title 20, section 1604, noting that there is no modification specific to providing wireless charging for other devices. Computer tests are generally performed in the “as-shipped” configuration, including cases where a computer is shipped with enabled wireless charging. That said, questions relating to performing the ENERGY STAR test procedure that are not related to a modification included in Title 20, section 1604 will need to be directed to, and answered by, the ENERGY STAR program.

3-12) Workstation’s power supply unit (PSU) efficiency requirements: The 115V/230V requirements are noted in Table V-9. Some companies have workstation products that will ship into California that utilize a 115V PSU/power cord. Does that imply the 230V efficiency requirement is not applicable?

A. Per section 1605.3(v)(6)(A), small-scale servers, high-expandability computers, mobile workstations, and workstations manufactured on or after January 1, 2018, must be powered by an internal power supply that meets or exceeds the standards in Table V-9. If the workstation unit itself is rated for both voltages (115 V and 230 V) and is powered by a power supply that is capable of operating at both 115 V and 230 V, then the power supply needs to meet both efficiency requirements. If it is only rated for a single voltage, then it only needs to meet the requirement for that particular voltage. This is regardless of the number or type of power cords provided with the unit, noting that some manufacturers or retailers may choose not to include a power cord and instead sell them separately.

3-13) Is there an adder for integrated organic light-emitting diode (OLED) displays used in either “Notebooks” or “Integrated”?

A. No. There is no OLED adder for integrated displays.

3-14) How does the CEC define the storage “other” TEC adder?

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A. The TEC adder for the storage device that is listed as “other” in Table V-8 applies to the “storage device other than main storage device” that is not: 3.5-inch drive, 2.5-inch drive, solid state drive (SSD), or solid state hard drive (SSHD) in desktop, mobile gaming system, or thin-client computers. This adder is 26 KWh/yr.

3-15) Does the expandability score for Universal Serial Bus (USB) ports depend on whether the port provides the default power level that is associated with the USB Standard specification, or more than the standard USB power as specified in the USB Power Delivery (PD) or USB Battery Charging (BC) specifications?

A. USB expandability scores are assigned based on the “as shipped” configuration of the USB. For example an expandability score of 100 is applied to a USB port that uses USB PD protocol and is capable of providing 100 Watts or more of power to a device.

3-16) If a notebook includes an RJ45 connection that supports a wired Ethernet Card with a transmit rate of 10GB/s or greater, and that also supports Energy Efficient Ethernet (EEE), can a manufacturer apply both adders?

A. Yes. Both adders would be applicable. Note that in order to apply the EEE adder, it must be enabled when the computer is shipped.

3-17) If a system has a discrete GPU that is connected through a PCI-E x 16 on the motherboard, not in the package of the Central Processing Unit (CPU), can it claim the PCI-E x16 Expandability Score since it is providing the same power and functionality to that of what the connector would provide?

A. Yes. If a discrete GPU card is connected through a PCI-E x 16 on the motherboard, the system can claim an expandability score for the PCI-E x 16 and an adder for the discrete GPU.

3-18) What is the process to get a new interface recognized for the expandability score core table (section 1604 Table V-1)?

A. Any request to assign an expandability score to a new interface will require changing the regulations and should follow the steps outlined in answer to Question 1-12.

3-19) Are next generation interfaces that improve on existing generations of technologies eligible to use the same expandability score (Table V-1) as the previous generation technology?

A. Yes. Provided the performance of the new generation interface exceeds the performance of the older generation. For example an unconnected USB 3.1 Gen 2 motherboard header can claim the same expandability score as an unconnected USB 3.1 Gen 1 motherboard header.

3-20) What is required by the standard in section 1605.3(v)(4)(C) for computer monitor screen luminance when shipped?

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A. The standard in section 1605.3(v)(4)(C) requires computer monitors manufactured on or after July 1, 2019, to be shipped with a screen luminance less than or equal to $200 \text{ cd/m}^2 \pm 35$ percent. This means that a computer monitor must have a screen luminance of less than or equal to a maximum of 270 cd/m^2 when shipped.